

based polymer, ~~gene, balanced by~~ a terminator, one or more selectable marker genes with, and one or more regulatory elements to facilitate transformation of plant cells.

4. (Amended) ~~An~~ The expression cassette of claim 3 wherein the ~~gene contains~~ the elastic and plastic protein based polymer comprises a repetitive amino acid sequence GVGVVP Gly-Val-Gly-Val-Pro (SEQ. ID. NO. 2).

5. (Amended) ~~As~~ The expression cassette of claim 3 wherein said fiber specific promoter comprises an E-6 promoter ~~which comprises the fiber specific promoter E-6.~~

6. (Amended) ~~As~~ The expression cassette of claim 3 wherein the gene is synthetic; and is not found in nature and wherein manipulation of said gene sequence allows control of the gene sequence as well as physical/ and/or chemical properties of the encoded elastic and plastic protein-based polymer could be altered at will.

Please add the following new claim:

7. (New) A transgenic cotton plant according to Claim 1, wherein said elastic and plastic protein based polymer exhibits temperature transition at a temperature lower than body temperature wherein said protein based polymer unfolds during said temperature transition.

In the Claims (clean copy as amended)

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1. (Amended) A transgenic cotton plant comprising fiber cells stably transformed with an expression cassette comprising a gene encoding an elastic and plastic protein based polymer wherein said fiber cells exhibit increased water absorption, fiber strength, elasticity, and dye binding capacity relative to untransformed fiber cells.

2. (Amended) The transgenic cotton plant of claim 1, wherein said gene encodes the repetitive amino acid sequence Gly-Val-Gly-Val-Pro (SEQ. ID. NO. 2).

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3. (Amended) An expression cassette comprising a fiber specific promoter driving expression of a gene encoding an elastic and plastic protein based polymer, a terminator, one or more selectable marker genes, and one or more regulatory elements to facilitate transformation of plant cells.

4. (Amended) The expression cassette of claim 3 wherein the elastic and plastic protein based polymer comprises a repetitive amino acid sequence Gly-Val-Gly-Val-Pro (SEQ. ID. NO. 2).

5. (Amended) The expression cassette of claim 3 wherein said fiber specific promoter comprises an E-6 promoter.

6. (Amended) The expression cassette of claim 3 wherein the gene is synthetic and is not found in nature and wherein manipulation of said gene sequence allows control of physical and/or chemical properties of the encoded elastic and plastic protein-based polymer.

Please add the following new claim:

B² 7. (New) A transgenic cotton plant according to Claim 1, wherein said elastic an plastic protein based polymer exhibits temperature transition at a temperature lower than body temperature wherein said protein based polymer unfolds during said temperature transition.
